

Answer key

8th Grade Physical Science
Chapter 10 Review Guide - Forces



The Nature of Force

- Describe force Push/Pull
- Explain how balanced and unbalanced forces are related to an object's motion
- What is the unit of force in SI notation? (Give two answers)

Newton kg/m/s

→ 5 ← 10

Friction

- What is friction? 2 Forces exert on each other when sliding
- What are the four types of friction? state sliding
- In what direction does friction act? opposite of motion of rolling forward
- What is air resistance?

Gravity

- What is gravity? sliding friction
- What is universal gravitation? attraction of matter
- What is the acceleration due to gravity at the surface of the Earth? 9.8 unbalanced force causes an object to accelerate
- What are the factors that affect the magnitude of gravitational pull? mass to accelerate
- What is weight? Measure of force of gravity on an object
- What is mass? Measure of how much matter is in an object
- Explain how weight and mass are related but different
- Why do objects accelerate during free fall? unbalanced
- What is projectile motion? An object that's thrown.

Newton's First and Second Laws

- State Newton's First Law of Motion object at rest will stay at rest unless a force acts on it
- Describe inertia tendency of an object to resist a change in motion
- State Newton's Second Law of Motion and provide Newton's famous equation which embodies this law

Acceleration depends on an object's mass

Newton's Third Law

- State Newton's Third Law of Motion If one object exerts a force on another object, the 2nd object exerts a force of equal strength in SI notation?
- What is momentum?
- What is the formula for calculating momentum? What are the units of momentum?

$$m \times v = p$$

$$0 \times 0 = 0$$

$$1 \times 1 = 1$$

$$2 \times 2 = 4$$

$$3 \times 3 = 9$$

$$4 \times 4 = 16$$

$$5 \times 5 = 25$$

in absence of outside forces the total momentum of objects that interact does not change

Rockets and Satellites

- Explain what causes a rocket to lift off the ground, including the action/reaction forces, acceleration, and gravity
- Describe the forces that keep a satellite in orbit
- What is centripetal force? center seeking

